BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Engineering Pearson BTEC International Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Electric/Electronic Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Electric/Electronic Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering
Unit number and title	**Unit 44: Fabrication Manufacturing Processes**
Learning aim(s)	**A**: Examine the processes and technology used in sheet metal fabrication that are widely used in industry.
Assignment title	1 Recommending appropriate fabrication manufacturing processes.
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are working as manufacturing engineer for a company specialising in the manufacture of industrial workshop storage equipment including cabinets, shelving and racking systems. One of your design colleagues has been working for some time with the technical sales team to develop fabricated products for an important customer. They have come to you with various component drawings to ask your advice on the most cost effective way to manufacture each part. They explain that initially a small number of sample products are required for evaluation by the client as soon as possible. When these have been approved an initial order for 120 units is expected for delivery within 6 weeks. The sales team are confident that this will be followed by on-going repeat orders totalling several thousand units per year.

Task 1	You have been asked to demonstrate your understanding of a range of fabrication manufacturing processes in the form of an illustrated technical report. **To do this:** Your tutor will provide you with engineering drawings for two products that are manufactured from at least two sheet metal components. You will use these two products to produce an illustrated technical report to provide the guidance on component manufacturing techniques that could be specified by the designer of the new product. Your report must: a) Explain the operation and use of three types of hand/bench equipment t and three larger pieces of industrial equipment that are used in the manufacture of components for two sheet metal products detailed in given engineering drawings.. b) Investigate, analyse and recommend the best way to manufacture each of the two components in batch sizes of 1, 120 and 1000 based on a detailed evaluation of the possible alternatives. Your recommendations must include consideration of accuracy and sustainability, alongside other factors such as cost, speed, required skill and repeatability. Your report should be professionally presented, and focus on both low volume manual/workshop processes and high volume industrial processes
Checklist of evidence required	A written report on at least two different types of fabrication processes and how these might be applied based on the requirements of researched case studies

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
44/A.D1	Evaluate, using vocational and high quality written language, the use of contrasting fabrication processes to sustainably manufacture sheet metal components in different batch sizes.
44/A.M1	Analyse how different fabrication processes are used to sustainably manufacture sheet metal components to the intended accuracy.
44/A.P1	Explain how different fabrication processes are used to manufacture sheet metal components.

Sources of information to support you with this Assignment	**Textbooks** Fournier, R, *Sheet Metal Handbook*, Penguin Putnam Inc, 1987 ISBN 9780895867575. Useful practical handbook covering many traditional metal forming techniques used in low volume manufacturing. Timings, R, *Fabrication and Welding Engineering*, Newnes, 2008 ISBN 0750666919. Provides comprehensive coverage of sheet metalworking and welding in the manufacture of fabricated products. Wakeford, R, *Sheet Metal Work Workshop Practice,* Special Interest Model, 1987 ISBN 9780852428498. Useful practical guide to working with sheet metal.

	Websites britishmetalforming.com/ is the homepage of the Confederation of British Metalforming, a trade body representing the interests of the metal forming industry. hse.gov.uk is the homepage of the Health and Safety Executive in the UK that provides much useful information including guides to health and safety and risk assessment. qualitytool.com/resources/Design-Handbook-Rev3.pdf is a useful guide to industrial cutting and forming processes, Quality Tool. thelibraryofmanufacturing.com/index.html is a useful online resource that covers a range of manufacturing processes including sheet metal fabrication, thelibraryofmanufacturing.com Above are some examples of websites. Further useful resources may be found at qualifications.pearson.com/en/support/published-resources.html#step1